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MAY 4 1957

OF  
MEDICINE

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U. S. NAVAL HOSPITAL  
MARE ISLAND, VALLEJO, CALIFORNIA

NH51/A9--4(86-2)  
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DOCUMENTS SECTION

31 January 1950

From: Officer in Charge, Artificial Limb Department  
To: Commanding Officer

Subj: Monthly report on the experimental work of the Artificial Limb Department

Ref: (a) Advisory Committee on Artificial Limbs ltr of 21 Jun 1949  
(b) Research Division ltr of 24 Jun 1949, BUMED CODE 71/DJD:gh  
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1. Monthly report required by references (a) and (b) is hereby submitted.
2. The following projects are under production, experimentation and further study:  
(NM 007 084)

(a) Lower Extremities Section:

I. Foot and ankle (NM 007 084.30)

New laminated rubber blocks for the ankle joint have been received and tested in the ankle moment device and curves plotted using the various combinations. These curves show a similarity and come within the ranges of the ideal curves as advocated by the University of California. At the present time we are testing these new laminated rubber blocks in ankles on amputees. Accelerating testing is continuing at the present time. A million cycles have been run on the functional ankle without appreciable signs of wear and tear on the joint and fairing. Three functional ankle setups have been sent to New York University for shakedown tests.

II. Shank (NM 007 084.10)

A number of shins have been made up from the new mould. At the present the moulds are being altered in order to fit the knee block, to the top of the shin.

III. Knee

(A) Mechanical variable cadence knee joint (NM 007 084.32)

There are several alterations being made on the variable cadence knee joint. Dies have been made for the rubber bumper and this part is now readily attached by means of four holes in the metal plate of the knee stock. The knee stock itself has been redesigned. The variable cadence part has been redesigned in order to eliminate the metal cage which has broken in two cases and is a critical part in the alignment of the joint. The new design will eliminate both these undesirable features. Several units have been placed in the accelerating testing machine and are holding up surprisingly well. At the present time the machine has run over a million cycles. The leather material for the braking surface shows wear after approximately six months usage. Nylon bushings are being secured in order to test that material which is believed to be superior in quality as compared to leather. It is contemplated sending three variable cadence units to the New York University for shakedown tests.



IV. Cosmetic Problem (NM 007 084.20)

No additional work has been done on the cosmetic problem this month.

V. Brief summary of status of models as a unit.

(A) Soft socket (NM 007 084.16)

Several BK sockets have been manufactured using Pros-to-form. The soft liners have been fitted directly on the amputee stump and heated Pros-to-form cone has then been pulled over the stump and then shrunk down to the stump by means of a wet elastic bandage. This has provided a satisfactory fit without the necessity of using a plaster model of the stump. We are continuing work on the plasticising of leather for use as a leather liner. At the present time we are using Bolta-flex plastic as a substitute for the leather liner. This material appears to be highly satisfactory.

(B) Suction Socket.

A new bilateral case is being fitted with below suction sockets.

(b) Upper Extremities Section:

I. Above elbow arm (NM 007 084.17)

The automatic lock on the above elbow arm is working satisfactorily. Six more units are being manufactured.

II. Hands, hooks and tools (NM 007 084.18)

Additional cases are being fitted with Robinson hands incorporating the automatic lock.

III. Cosmetic problem

No work has been done on the cosmetic problem of the arm this month.

IV. Harness and/or other outside control (NM 007 084.21)

No additional work has been done on the harness this month.

V. Brief summary of status of models as a unit.

The cineplastic arm for the below elbow with the biceps motor has been redesigned and is working satisfactorily at the present time. One additional case has undergone surgery and this patient is now receiving exercises to his motor.

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